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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,639	01/28/2004	Nicolas J. Moll	10031291-1	3751

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AGILENT TECHNOLOGIES, INC.  
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EXAMINER

AHMED, SHAMIM

ART UNIT PAPER NUMBER

1765

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/766,639	MOLL ET AL.	
	Examiner	Art Unit	
	Shamim Ahmed	1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 26-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7, 8, 16-20 and 25 is/are rejected.
- 7) ☒ Claim(s) 5, 6, 9-15 and 21-24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of Group I in the reply filed on 31 May 2005 is acknowledged. The traversal is on the following ground(s):

a) The Examiner has failed to establish a prima facie case for restriction, and the inventions are related.

b) No valid reason exists for dividing, and an alternate class subclass is suggested.

These arguments are addressed as follows:

a) The Examiner has considered the Applicant's arguments. However, the claim language of Claim 26 makes it unclear exactly what is being claimed. Claim 1 is directed to a method of placing a payload containing nanoparticle on a substrate. The arguments also state that "an apparatus corresponding to claim Group II may be fabricated by the method corresponding to claim Group I" (Page 2 of 4). Claim 26 is directed to an apparatus comprising a set of substantially identical substrates having a nanoparticles are positioned relative to respective reference features. There are no limitations that indicate to the Examiner that the item of Claim 26 is the product of the process claimed in Claim 1, and therefore it remains the Examiner's position that the restriction is proper.

However, in view of the Applicant's arguments which admit that "an apparatus corresponding to claim Group II may be fabricated by the method corresponding to claim Group I" (Page 2 of 4, middle of page), the following basis for restriction is now alternatively presented:

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Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process, such as manipulation of nanoparticles by an atomic force microscope. This technique requires no organic components and no patterned film.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification (presented previously), recognized divergent subject matter, and because the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

b) The Applicant is thanked for their alternative classification. However, articles and methods are typically classified separately according to their statutory classes. Additionally, this is one of the three bases for establishing burden, and the Applicant's arguments do not appear to address the additional bases for restriction.

The requirement is still deemed proper and is therefore made FINAL.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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3. Claims 1-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Regarding claim 1, the phrase "removing organic components" renders the claim indefinite because it is unclear whether the removal step is limited to only organic material in the polymer layer without removing the payload moiety or both.
5. As to claim 25, similar analysis applies as discussed above and also noted that the term "components" recited in line 8 is not clear that the components are directed to the organic components, which are removed in line 6 or the payload moiety.
6. It is further noted that in claim 25, line 6, the phrase "removing organic components of the patterned film to form respective nanoparticles" renders the claim indefinite because it is unclear whether the formation of the nanoparticles in relation to the patterns or with the removal of the organic components.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-4,7-8,16-20 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi et al (2001/0006851) in view of Wang et al (2005/0084613).

Choi et al disclose a process of forming nano-sized surface features on a substrate, wherein the process including the steps of forming a polymeric layer on a substrate and etching or patterning the polymer layer using oxygen plasma through a photoresist masking layer (abstract, paragraph 0009).

Choi et al fail to teach the polymer layer comprises a vector polymer comprising a payload moiety.

However, Wang et al teach a process of forming nanopattern on a substrate, wherein coating a polymer layer comprising organic moiety such as acrylate and inorganic composites such as silicon, aluminum or other metallic composite (see paragraph 0025).

Wang et al also teach that such polymeric layer will provide improved nanopatterning due to the improved characteristics of the polymeric material such as maintaining desired pattern shape during the transformation of the polymeric material (see paragraphs 0008-0009).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of claimed invention to modify Choi et al's polymeric film with Wang et al's teaching

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for maintaining the desired pattern in order to form improved nano-sized structure as taught by Wang et al.

As to claims 7-8, Wang et al teach that the liquid layer (220) including various additives, which reads on the claimed binding material (see paragraphs 0026-0030), wherein the polymer liquid layer having a thickness of 100-300 nm (paragraph 0054).

***Allowable Subject Matter***

10. Claims 5-6,9-15 and 21-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach the vector polymer comprises a payload moiety of iron and also does not teach the polymer is a diblock polymer.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Black et al (US 2004/0256662) teach formation of silicon/polysilicon nanoparticles using diblock copolymer as masking; Dai et al (6,346,189) disclose a process of forming carbon nanotubes with catalyst island of iron oxide and Luk (5,782,954) discloses iron-based metallurgic powder with nanoparticles.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (571) 272-1457. The examiner can normally be reached on M-Thu (7:00-5:30) Every Friday Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G. Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shamim Ahmed  
Primary Examiner  
Art Unit 1765

SA  
August 20, 2005